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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,938	02/08/2002	Yutaka Matsunobu	381AS/49196DV	8443

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CROWELL & MORING, LLP
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EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT	PAPER NUMBER
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3618

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,938

Applicant(s)

Matsunobu et al.

Examiner

Vanaman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 28, 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5, 7, 9, 13, and 17 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5, 7, 9, 13, and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 8, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Apr 28, 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 7 6) ☐ Other:

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Status of Application

1. Applicant's amendment, filed April 28, 2003 has been entered in the application. Claims 5, 7, 9, 13, and 17 are pending.

Drawings

2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on April 28, 2003 have been disapproved. Applicant's proposed new drawing figure has not been approved because it does not clearly illustrate that claimed subject matter which was not previously illustrated.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore:

(I) the magnet inserting hole and magnet both (a) being at an inclined angle and (b) having an arc shape (claim 13-- note that this claim depends from claim 5 and includes all of claim 5's limitations), and

(II) the magnet and inserting hole being at an inclined angle wherein the width ratio between the magnet and inserting hole is 1: 0.5-0.9 (claim 17),

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. Applicant's proposed figure, lacking any illustration of the context of the motor rotor portion, fails to show those limitations as set forth above.

Claim Rejections 35 USC §112

5. Claims 5, 7, 9, 13 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 5, lines 17 and 23, "the reverse rotation..." lacks a clear antecedent basis, as does "the normal rotation..." in line 22. In claim 7, line 3, the

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parenthetical recitation renders the claim confusing, in claims 13 (at line 3) and 17 (at lines 3, 5) the recitation of "the rotational direction" is confusing.

These rejections were set forth in the previous office action, however applicant has neither amended the claims nor traversed the rejections.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 5, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakatsu (US 4,335,429) in view of Tadahiro et al. (JP 8-33246). Kawakatsu teaches a hybrid electric vehicle having an engine (1) an electric motor (5, 7) connected in series to a drive shaft which is then connected to a differential for driving the vehicle wheels, the reference teaching no forward/reverse switching gear.

The reference of Kawakatsu fails to teach the motor as being a permanent magnet machine having a stator, a stator core around which a coil is wound, a rotor arranged in the stator with a plurality of permanent magnets with the rotor being non-symmetrical at each pole, having a magnet accommodating slot which is inclined so as to be at a greater distance from the rotor circumference on a side associated with one rotational direction. The examiner hereby takes official notice that permanent magnet motors are extremely old and well known, and the provision of a stator with a core around which a coil is wound, wherein the stator surrounds a permanent magnet rotor is not at all beyond the skill of the ordinary practitioner, and it would have been obvious to one of ordinary skill in the art at the time of the invention to construct the motors of the vehicle of Kawakatsu with a permanent magnet motor having a stator around which a coil is wound, for the purpose of employing a well known and inexpensive standard motor for operating the vehicle.

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The modified reference of Kawakatsu fails to teach the rotor as including a non-symmetric configuration about a protruded pole, wherein a magnet insertion aperture is rectangular, and is inclined so as to favor a rotational direction. Tadahiro et al. teach a motor rotor having a plurality of permanent magnets (4a, 4b) which are installed in rectangular openings (3) which are inclined at an angle of between 10 and 45 degrees, the rotor including a plurality of protruded poles (e.g. A). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the non-symmetric configuration of the magnet insertion openings as taught by Tadahiro et al. to a conventional permanent magnet motor structure usable in the vehicle of Kawakatsu, for the purpose of increasing the operational force which may be exerted by the motor in one rotational direction. Also note that since Kawakatsu teaches motor-only drive in the lowest speed ranges (figure 2), and in that it is well known to provide a vehicle reverse gear with the lowest speed/highest torque relationship, generally a higher torque relationship than even the first forward gear, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the motor such that a reverse drive direction of the motor would develop higher torque than a forward drive direction for the purpose of controlling the vehicle behavior to mirror a user's expectations based on commonly available vehicle with mechanical transmissions. As regards the particular ratio of forward to reverse torque, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the difference in torque to be in the range of 1 : 1.05 - 1.2 for the purpose of setting a forward to reverse torque relationship similar to that known in a mechanical transmission.

9. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakatsu in view of Tadahiro et al. and Fumio (JP 9-271,151). The references of Kawakatsu and Tadahiro et al. are discussed above, but fail to teach (a) the magnet and magnet insertion openings to be arc shaped and (b) the magnet and magnet insertion opening to have a width

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ratio of 1: 0.9-0.5. Fumio et al. teach a permanent magnet machine having a stator (20), a stator core (22) around which a coil (24) is wound, a rotor (32) arranged in the stator with a plurality of permanent magnets (36) with the rotor being non-symmetrical at each pole (figures 2, 5), having a magnet accommodating slot (34) of greater width than the magnet, the ratio of slot to magnet length being in the range of 1:0.5-0.9, the slot and magnet having a rectangular (fig. 5) or arc shaped (fig. 2) cross section. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the rotor magnet and insertion openings taught by Kawakatsu as modified by Tadahiro et al. (a) to be arc shaped, for the purpose of adjusting the difference in motor output in the two running directions to be smaller or (b) such that the ratio of magnet width to insertion opening width is in the range of 1:0.5-0.9 for the purpose of adjusting the difference in motor output in the two running directions to be greater.

Response to Comments

7. Applicant's comments that the reference to Tadahiro et al., cited by applicant, only operates in a single direction are noted, however, no evidence of this has been provided. Note that the abstract (upon which applicant apparently relies, though applicant's arguments do not specifically refer to the abstract) which describes the structure as being suitable "especially a rotor suitable in one direction rotation" does not positively preclude bi-directional operation. The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997). Since applicant has provided no evidence of Tadahiro's motor operating in only a single direction to rebut the prima facie case of obviousness, in direct response to the rejection, the rejection is maintained. Since Kawakatsu lacks a teaching of a reverse switching gear, and since vehicle transmissions are arranged with a torque arrangement giving greater torque at low speed values in the reverse direction, it is not deemed to be beyond the skill of the ordinary practitioner to provide the drive motors of Kawakatsu with the structure set forth in Tadahiro et

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al. for the purpose of having a greater torque in the reverse direction in order to emulate the feel of a conventional transmission.

Applicant is also reminded of the contents of 37 CFR 1.56:

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application.

There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
- (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is (703) 308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-1113.

As of May 1, 2003, any response to this action should be mailed to:

Mail Stop ____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to :

(703) 305-3597 or 305-7687 (for formal communications intended for entry;
informal or draft communications may be faxed to the same number but should be
clearly labeled "UNOFFICIAL" or "DRAFT")

The Office has also established electronic fax servers for Technology Center 3600 as follows:

703-872-9326 (Official communications)
703-872-9327 (Official After Final communications)
703-872-9325 (Customer Service)

F. VANAMAN
Primary Examiner
Art Unit 3618

F. Vanaman
June 25, 2003



6/25/03